

WHAT IS CLAIMED IS:

1. A polymerizable composition comprising:

a binder polymer containing at least an acid group having an acid dissociation constant (pKa) of 5.5 or more and a radical addition polymerizable group; and

a radical-generating compound capable of generating a radical with light or heat.

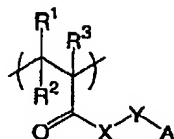
2. A polymerizable composition according to claim 1, wherein the acid group and the radical addition polymerizable group are introduced as a side chain of the binder polymer.

3. A polymerizable composition according to claim 1, wherein the acid group and the radical addition polymerizable group are introduced into terminal ends of a main chain of the binder polymer.

4. A polymerizable composition according to claim 1, wherein the pKa of the acid group is in a range from 7 to 11.5.

5. A polymerizable composition according to claim 1, wherein the binder polymer comprises a structural unit that has the acid group and that is represented by the following general formula (1):

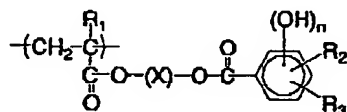
General formula (1)



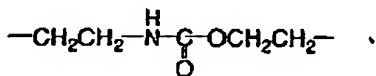
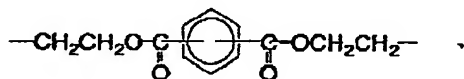
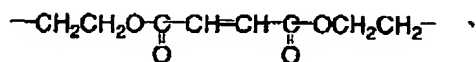
wherein in general formula (1), X represents O, S, or $\text{---NR}^4\text{---}$; Y represents a divalent organic group; A represents a specific acid group; and each of R^1 , R^2 , R^3 and R^4 independently represents a hydrogen atom, a halogen atom, a monovalent organic group, a cyano group, or a nitro group.

6. A polymerizable composition according to claim 1, wherein the binder polymer comprises a structural unit that has the acid group and that is represented by the following general formula (2):

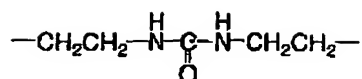
General formula (2)



wherein in general formula (2), X represents an alkylene group, a substituted alkylene group, $\text{---CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{---}$,



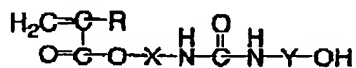
or



wherein R^1 represents a hydrogen atom, a halogen atom, or an alkyl group; each of R^2 and R^3 independently represents a hydrogen atom, a halogen atom, an alkyl group, a substituted alkyl group, an aromatic group, a substituted aromatic group, $-\text{OR}^4$, $-\text{COOR}^5$, $-\text{COONHR}^6$, $-\text{COR}^7$, or $-\text{CN}$; R^2 and R^3 may be bonded to each other to form a ring; each of R^4 to R^7 independently represents an alkyl group or an aromatic group; and n represents 2 or 3.

7. A polymerizable composition according to claim 1, wherein the binder polymer comprises a structural unit that has the acid group and that is represented by the following general formula (3):

General formula (3)

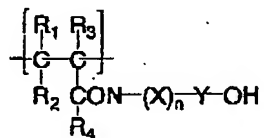


wherein in general formula (3), R represents a hydrogen atom or an alkyl group; X represents a divalent linking group; and Y represents a divalent aromatic group which may have substituents.

8. A polymerizable composition according to claim 1,

wherein the binder polymer comprises a structural unit that has the acid group and that is represented by the following general formula (4):

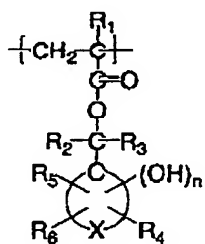
General formula (4)



wherein in general formula (4), each of R^1 and R^2 independently represents a hydrogen atom, an alkyl group, or a carboxylic acid group; R^3 represents a hydrogen atom, a halogen atom, or an alkyl group; R^4 represents a hydrogen atom, an alkyl group, a phenyl group, or an aralkyl group; X represents a divalent organic group linking a nitrogen atom to a carbon atom in an aromatic ring; n represents 0 or 1; and Y represents a phenylene group or a naphthylene group, each of which may have substituents.

9. A polymerizable composition according to claim 1, wherein the binder polymer comprises a structural unit that has the acid group and that is represented by the following general formula (5):

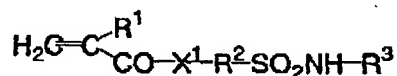
General formula (5)



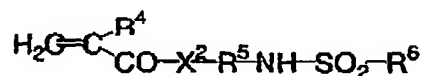
wherein in general formula (5), R_1 represents a hydrogen atom, a halogen atom, a cyano group, or an alkyl group; each of R_2 and R_3 independently represents a hydrogen atom, a halogen atom, an alkyl group, an alkoxyl group, or an aryl group; Each of R^4 , R^5 and R^6 independently represents a hydrogen atom, an alkyl group, an aryl group or a halogen atom; X represents an atom necessary for completing a monocyclic or polycyclic carbocyclic aromatic ring system; and n represents 1, 2 or 3.

10. A polymerizable composition according to claim 1, wherein the binder polymer comprises a structural unit that has the acid group and that is represented by one of the following general formulae (6) and (7):

General formula (6)



General formula (7)

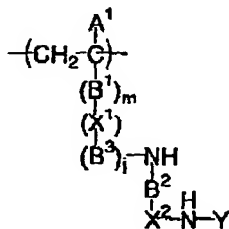


wherein in the above formulas, each of X^1 and X^2 independently represents $-\text{O}-$ or $-\text{NR}^7-$; each of R^1 and R^4 independently represents $-\text{H}$ or $-\text{CH}_3$; each of R^2 and R^5 independently represents an alkylene group, a cycloalkylene group, an arylene group or an aralkylene group each having from 1 to 12

carbon atoms and each of which may have substituents; R^3 represents $-H$ or an alkyl group, a cycloalkyl group, an aryl group or an aralkyl group each having from 1 to 12 carbon atoms and each of which may have substituents; R^6 represents an alkyl group, a cycloalkyl group, an aryl group or an aralkyl group each having from 1 to 12 carbon atoms and each of which may have substituents; and R^7 represents a hydrogen atom or an alkyl group, a cycloalkyl group, an aryl group or an aralkyl group each having from 1 to 12 carbon atoms and each of which may have substituents.

11. A polymerizable composition according to claim 1, wherein the binder polymer comprises a structural unit that has the acid group and that is represented by the following general formula (8):

General formula (8)

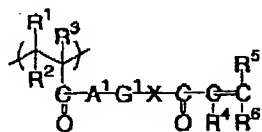


wherein in general formula (8), A^1 represents a hydrogen atom, a halogen atom, or an alkyl group having from 1 to 4 carbon atoms; B^1 represents a phenylene group or a substituted phenylene group; B^2 represents an alkylene group having from

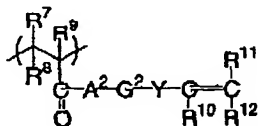
2 to 6 carbon atoms or a phenylene group, wherein each of which may have substituents; B¹ represents a divalent organic group; each of X¹ and X² independently represents -CO- or -SO₂-; Y represents -CO-R¹ or -SO₂-R¹; R¹ represents an alkyl group, a substituted alkyl group, an aromatic group, or a substituted aromatic group; and each of m and j represents 0 or 1.

12. A polymerizable composition according to claim 1, wherein the binder polymer comprises at least one of a structural unit that includes the radical addition polymerizable group and that is represented by one of the following general formulae (9) to (11):

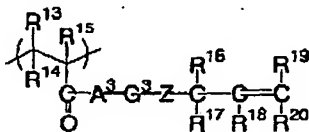
General formula (9)



General formula (10)



General formula (11)



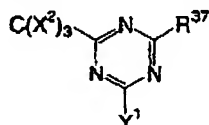
wherein in the above formulas, each of A^1 , A^2 and A^3 independently represents an oxygen atom, a sulfur atom, or $-N(R^{21})-$; R^{21} represents a hydrogen atom or an alkyl group which may have substituents; each of G^1 , G^2 and G^3 independently represents a divalent organic group; each of X and Z independently represents an oxygen atom, a sulfur atom, or $-N(R^{22})-$; R^{22} represents a hydrogen atom or an alkyl group which may have substituents; Y represents an oxygen atom, a sulfur atom, a phenylene group which may have substituents, or $-N(R^{23})-$; R^{23} represents an alkyl group which may have substituents; and each of R^1 to R^{20} independently represents a monovalent inorganic or organic group.

13. A polymerizable composition according to claim 1, wherein a mixing ratio of structural units that have the acid groups relative to total structural units contained in the binder polymer is in a range of from 5 to 70 % by mole.

14. A polymerizable composition according to claim 1, wherein a mixing ratio of structural units that have the radical addition polymerizable groups relative to total structural units contained in the binder polymer is in a range of from 5 to 95 % by mole.

15. A polymerizable composition according to claim 1, wherein the radical-generating compound contains at least one selected from the group consisting of an aromatic iodonium salt, an aromatic sulfonium salt, a titanocene compound, and a trihalomethyl-S-triazine compound represented by the following general formula (17):

General formula (17)



wherein in general formula (17), X^1 represents a halogen atom; Y^1 represents $-C(X^1)_3$, $-NH_2$, $-NHR^{36}$, $-NR^{36}$, or $-OR^{36}$; R^{36} represents an alkyl group, a substituted alkyl group, an aryl group, or a substituted aryl group; and R^{37} represents $-C(X^2)_3$, an alkyl group, a substituted alkyl group, an aryl group, a substituted aryl group, or a substituted alkenyl group.

16. A polymerizable composition according to claim 1, further comprising a radical polymerizable compound.

17. A polymerizable composition according to claim 16, wherein a mixing ratio of the binder polymer to the radical polymerizable compound is in the range of 1:0.05 to 1:3 by weight.

18. A negative-working planographic printing plate precursor, comprising a support having a recording layer containing a polymerizable composition provided thereon, wherein the polymerizable composition comprises:

a binder polymer containing an acid group having an acid dissociation constant (pK_a) of 5.5 or more and a radical addition polymerizable group; and

a radical-generating compound capable of generating radicals with light or heat.